Overview Of Recent Bay TMDL Actions

Stakeholder Advisory Group

June 15, 2010

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

List of Issues

- Revised Process and Schedule

- Early Look at July 1 Basin Nutrient Allocations

Revised TMDL & WIP Schedule

Deliverable	Previous Schedule	Revised Schedule
Preliminary Phase 1 WIPs	6/1/2010	N/A
Draft Phase 1 WIPs	8/1/2010	9/1/2010
Bay TMDL public comment period	8/15 to 10/15/2010	9/24 to 11/8/2010
Final Phase 1 WIPs	11/1/2010	11/29/2010
Bay TMDL Established	12/31/2010	12/31/2010
Final Phase 2 WIPs	11/1/2011	11/1/2011
Final Phase 3 WIPs	11/1/2017	11/1/2017

Bay TMDL: Getting to December 2010

- State/basin nutrient allocated loads will be established using existing 5.3 model by July 1, 2010
- State/basin sediment allocated loads will be established using existing 5.3 model by August 15, 2010
- ~~EPA will subtract a safety factor from the state/basin allocation~~
- Establish the state allocations and the Bay TMDL without the temporary reserve
- Identify the reserve in the Bay TMDL, separate from the state allocations
- The Bay TMDL will be established by December 31, 2010 based on the existing 5.3 model
- All 2010 WIPs will be based on existing 5.3 model with a ~~safety factor~~ temporary reserve
- The Bay 5.3 model will be updated in 2010 to address state concerns

Bay TMDL:
Going beyond December 2010

- Again the Bay 5.3 model will be updated in 2010, but not used in 2010 WIPs/2010 TMDL
- Updated 5.3 model will inform revisions to Phase 1 state WIPs in 2011, as part of Phase 2 submittal
- Updated 5.3 model will be used as the model of record for determining state attainment of two-year milestones
- Phase 2, 2011 will allow for the adaptive management for the State allocations. The next opportunity will be Phase 3, 2017

Adaptive Management: Flexibility in Modifying State WIPs

- Opportunity for states to modify their Phase I WIPs/allocations after TMDL is issued
  - Modify PS to NPS allocations
  - Perhaps modify basin allocations
  - Loading changes provided by states in revised Phase I WIPs accompanied by an allocation modification document must:
    - meet WQS
    - undergo 30 day public comment
    - be sent to EPA for review of WIPs and approval of the TMDL allocation modification document
    - be part of Phase 2 and Phase 3 submittals
- Adaptive management process will be described in TMDL

Early Look at July 1 Virginia Nutrient Allocations

Based on Bay Watershed Allocation of 190 TN and 13 TP

Draft Allocations Date	Total Nitrogen [MPY]	Total Phosphorus [MPY]
Tributary Strategies	55.7	6.6
November 4, 2009	59.2	7.1
June 14, 2010	**56.7 [?]**	**5.9 [?]**

2009 Progress	65.7	7.1
2002 Progress	75.7	8.3
1985 Baseline	91.4	11.3

Relative Comparisons among States Nitrogen [fraction of E3]

For 190 MPY Basinwide Allocation/ 56.7 MPY VA Allocation

States	WWTP	All Other
DC	0.90	0.68
DE	0.90	0.72
MD	0.89	0.68
NY	0.90	0.66
PA	0.90	0.70
VA	0.77	0.60
WV	0.73	0.60

Relative Comparisons among States Phosphorus [fraction of E3]

For 13.0 MPY Basinwide Allocation/ 5.9 MPY VA Allocation

States	WWTP	All Other
DC	0.96	0.58
DE	0.96	0.61
MD	0.95	0.59
NY	0.95	0.54
PA	0.95	0.55
VA	0.90	0.50
WV	0.90	0.52

Questions / Discussion

Model Results for Initial Scoping Scenarios for Sectors

Wastewater
Agriculture
Urban/Suburban Stormwater
Onsite/Septic
Forest

Wastewater

DRAFT Initial Scoping Run (EPIL) of BMP coverage to 2017

- Significant Dischargers - Wastewater loads were based on maximum loads allowed by WQMP regulation adopted in 2005 with subsequent amendments and contained in the watershed General Permit
- Nonsignificant Dischargers – Based on procedures in VA Code adopted in 2005 using estimated data

Agriculture

DRAFT Initial Scoping Run (EPIL) of BMP coverage to 2017

BMPs (partial list)	2008 % Treatment	2017 % Treatment
Continuous No-till	7.84%	25%
Cover crops - all types	8.98%	22%
Forest Buffers - Pasture	5.55%	10%
Grass Buffers - Pasture	10.17%	15%
Grass Buffers-Cropland	8.08%	20%
Livestock Exclusion Fencing	11.34%	25%
Nutrient Management - Cropland	51.16%	65%

- Plus animal mortality composters, poultry litter transport, Phytase feed P reductions, ammonia source reductions, precision agriculture, etc.

Urban/Suburban Stormwater

DRAFT Initial Scoping Run (EPIL) of BMP coverage to 2017

- New Urban Development – no increase in load due to growth
- Existing Developed Lands
  - High efficiency urban BMPs applied to 0.9% of impervious urban land per year and 0.3% of pervious urban land per year.
  - Urban nutrient management on 175,000 acres by 2017 (current progress is 27,000 acres).
  - Street sweeping on 20,000 acres annually.
  - Urban stream restoration of 50,000 feet.

Onsite/Septic Systems

DRAFT Initial Scoping Run (EPIL) of BMP coverage to 2017

BMPs	2017 Treatment
Septic Connections	8,763
Septic Denitrification Systems	10,238
Septic Pump-outs	76,643

Forest

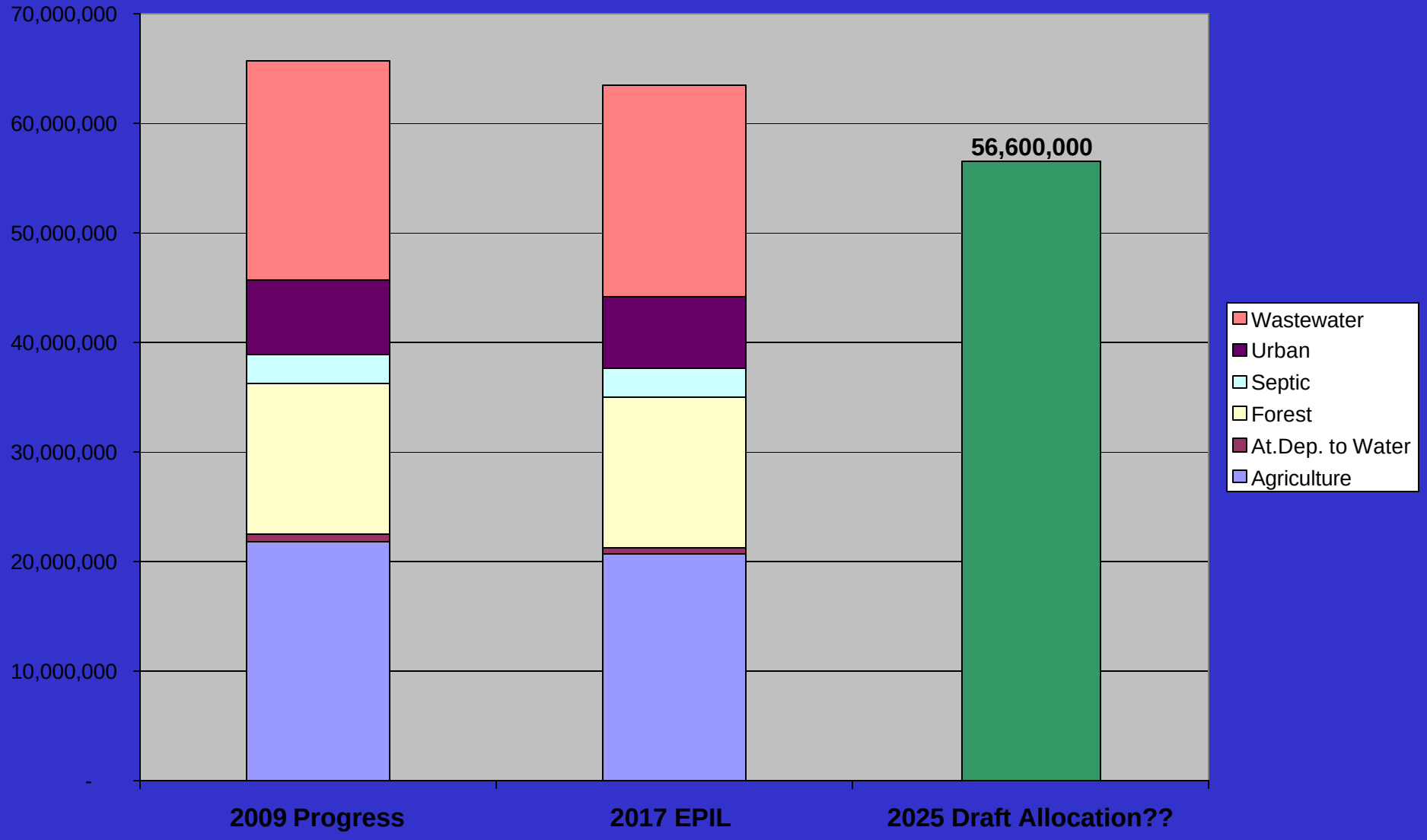
DRAFT Initial Scoping Run (EPIL) of BMP coverage to 2017

- Increase forest harvesting BMPs from current 83% to 90% of acreage

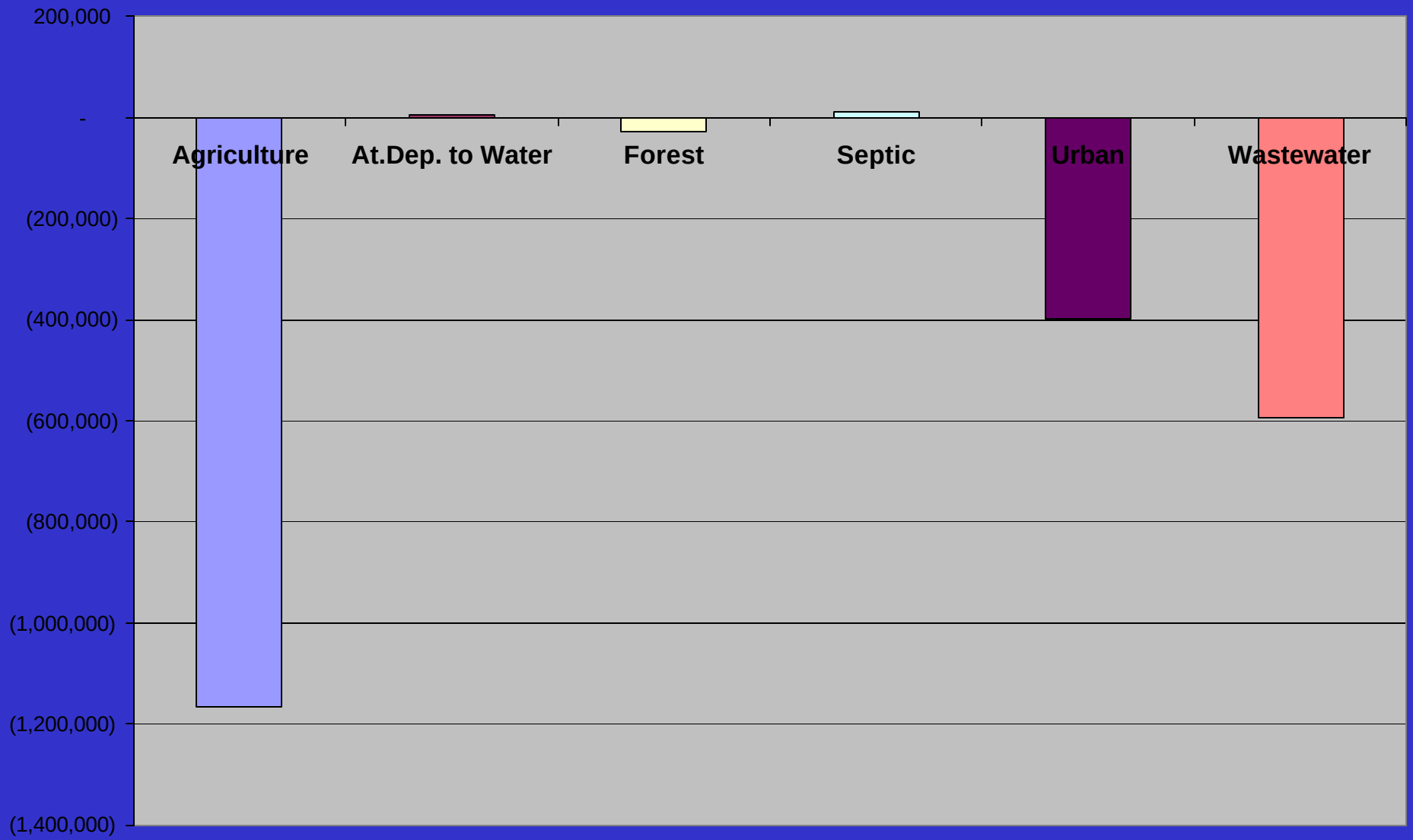
Initial Scoping Scenarios (EPIL) Model Run Results

Million Pounds All VA Basins	Nitrogen	Phosphorus
2009 Progress	65.73	7.14
EPIL Run	63.56	7.02
Possible Allocation ???(DO Only)	56.60	5.90
EPIL % Reduction From 2009	23.8%	9.8%

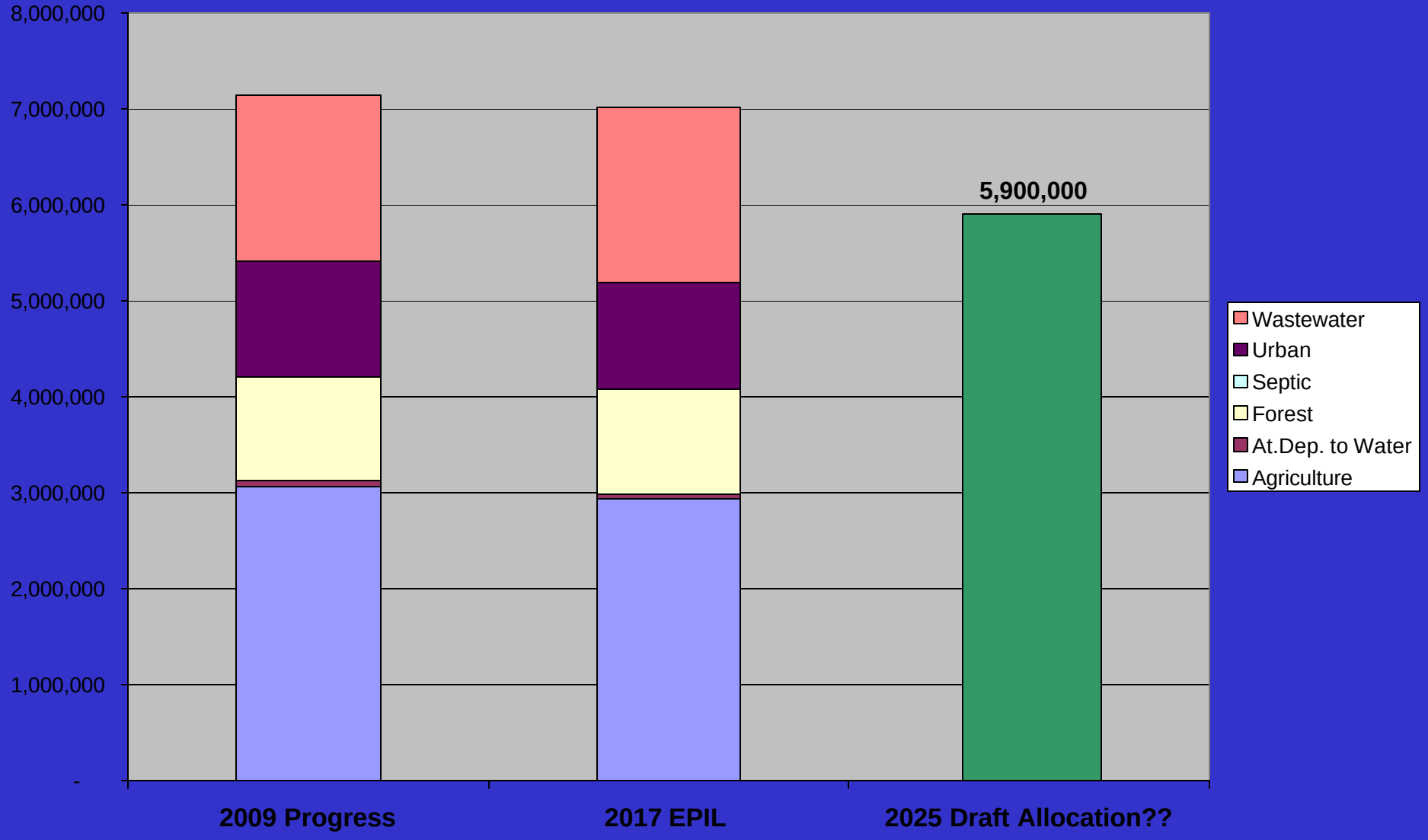
Virginia Chesapeake Bay Nitrogen



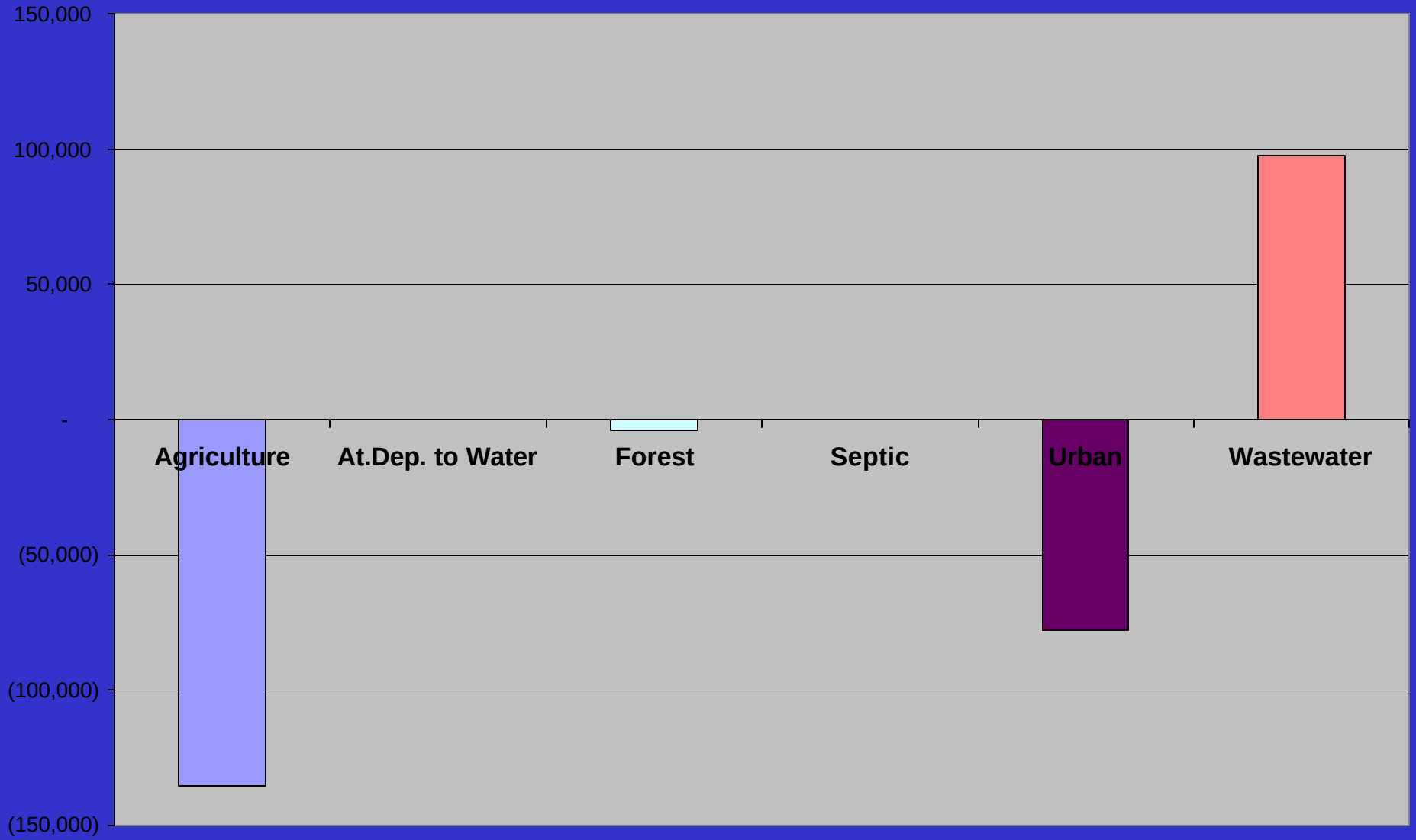
Virginia Bay Nitrogen Reductions from 2009 to EPIL



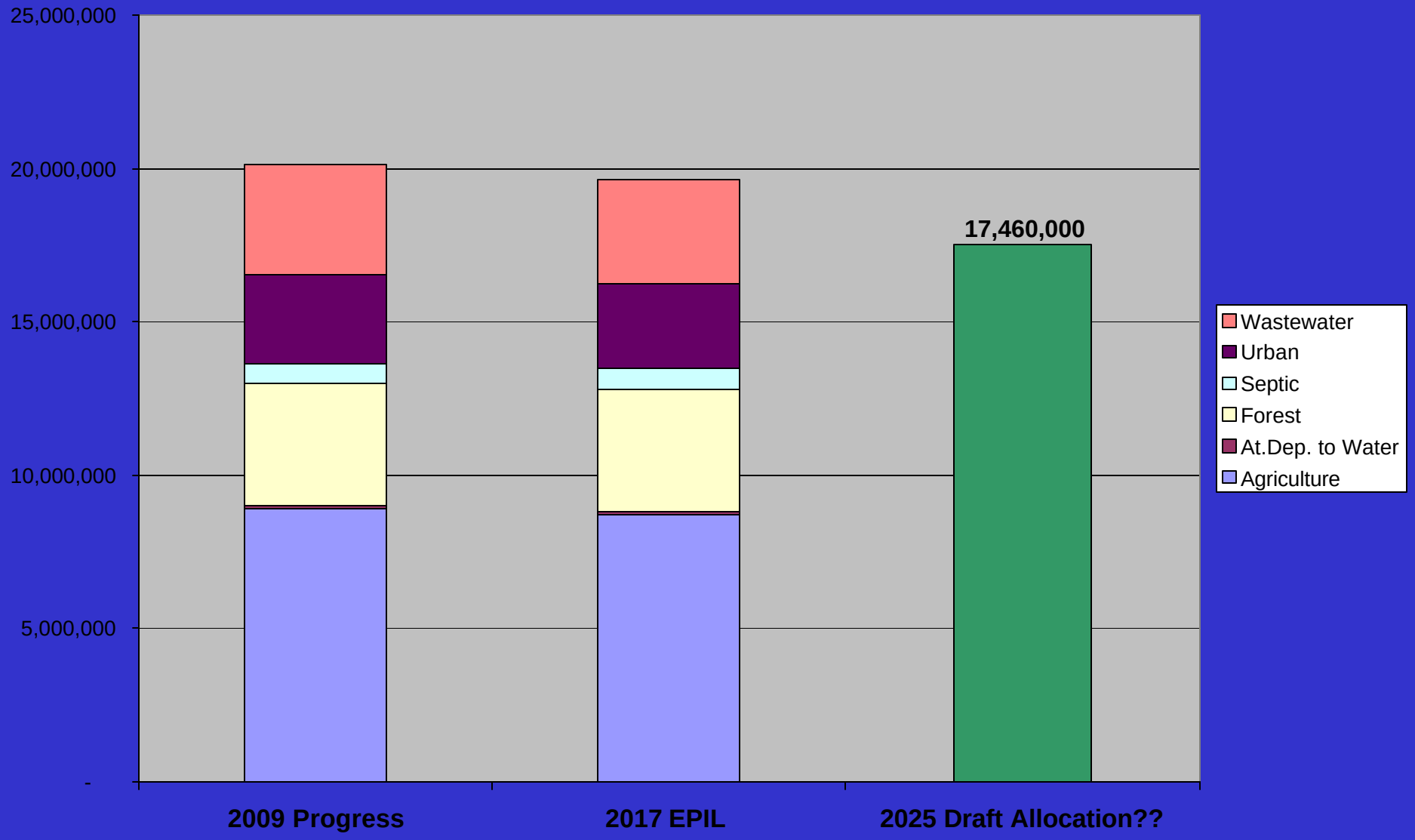
Virginia Chesapeake Bay Phosphorus



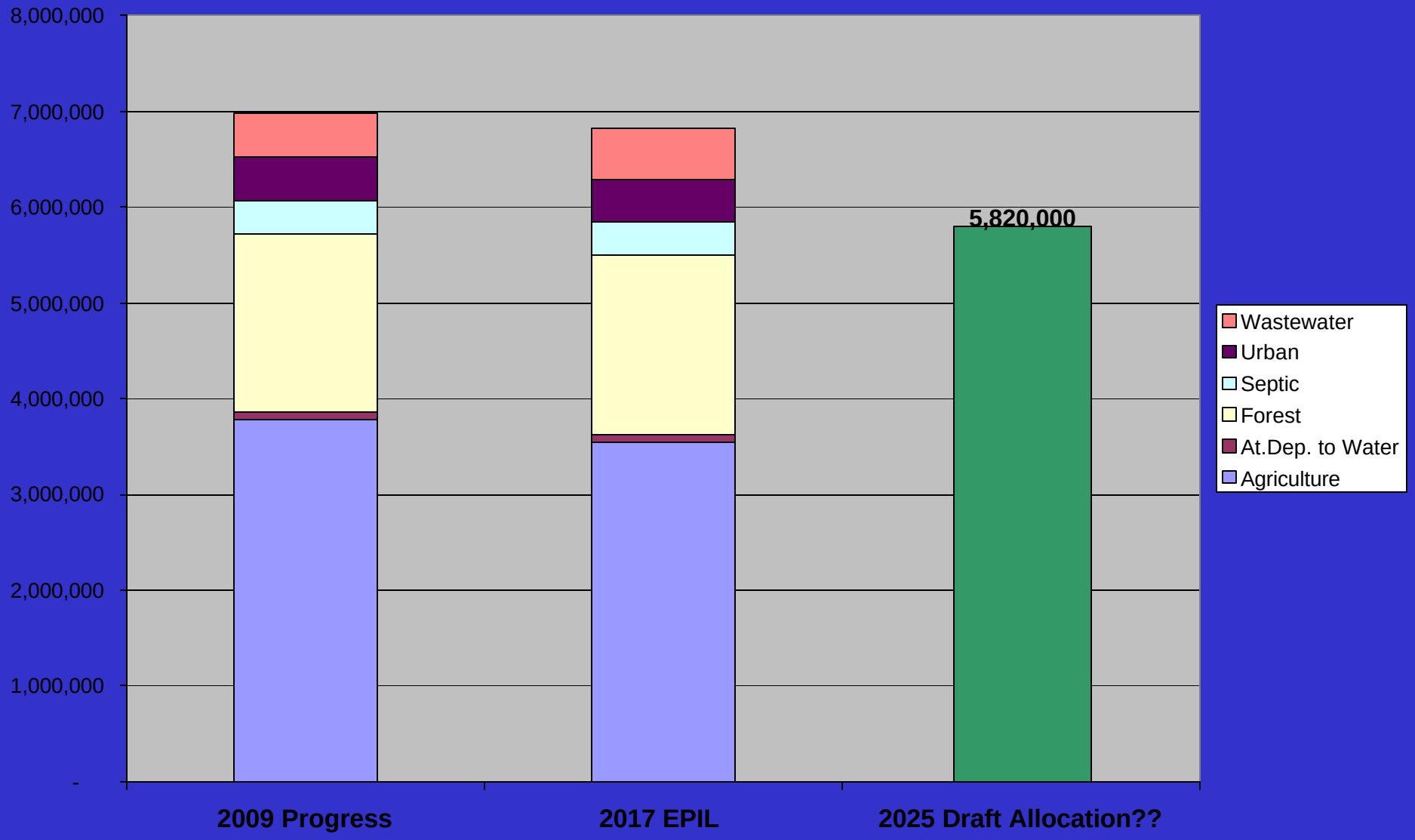
Virginia Bay Phosphorus Reductions from 2009 to EPIL



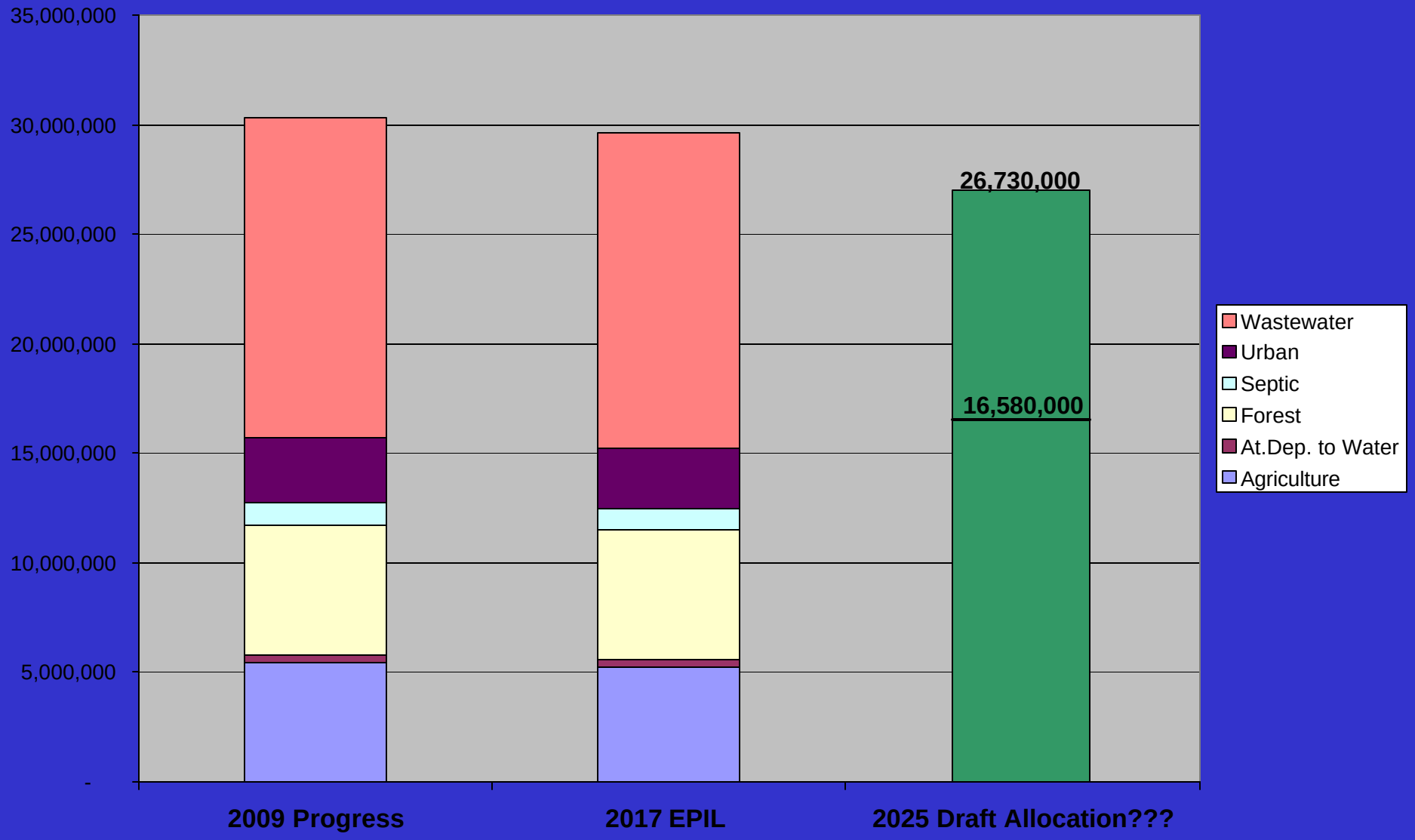
Potomac River Basin - Nitrogen



Rappahannock River Basin - Nitrogen



James River Basin - Nitrogen



What Next?

- Staff will develop 2 alternative scenarios for each sector to achieve further reductions
- Expect these to have a significantly greater level of effort than the EPIL
- Model runs for these additional scenarios will be requested
- Will present scenarios to initial meetings of sector working groups

Questions / Discussion

Accounting for Growth

Accounting for Growth

- EPA provides two approaches:
  - Designate explicit target loads in TMDL for anticipated growth; this decreases allocations available for existing sources; OR,
  - Do not designate explicit target loads for growth, but “offset” any new or increased loads in the future with reductions elsewhere

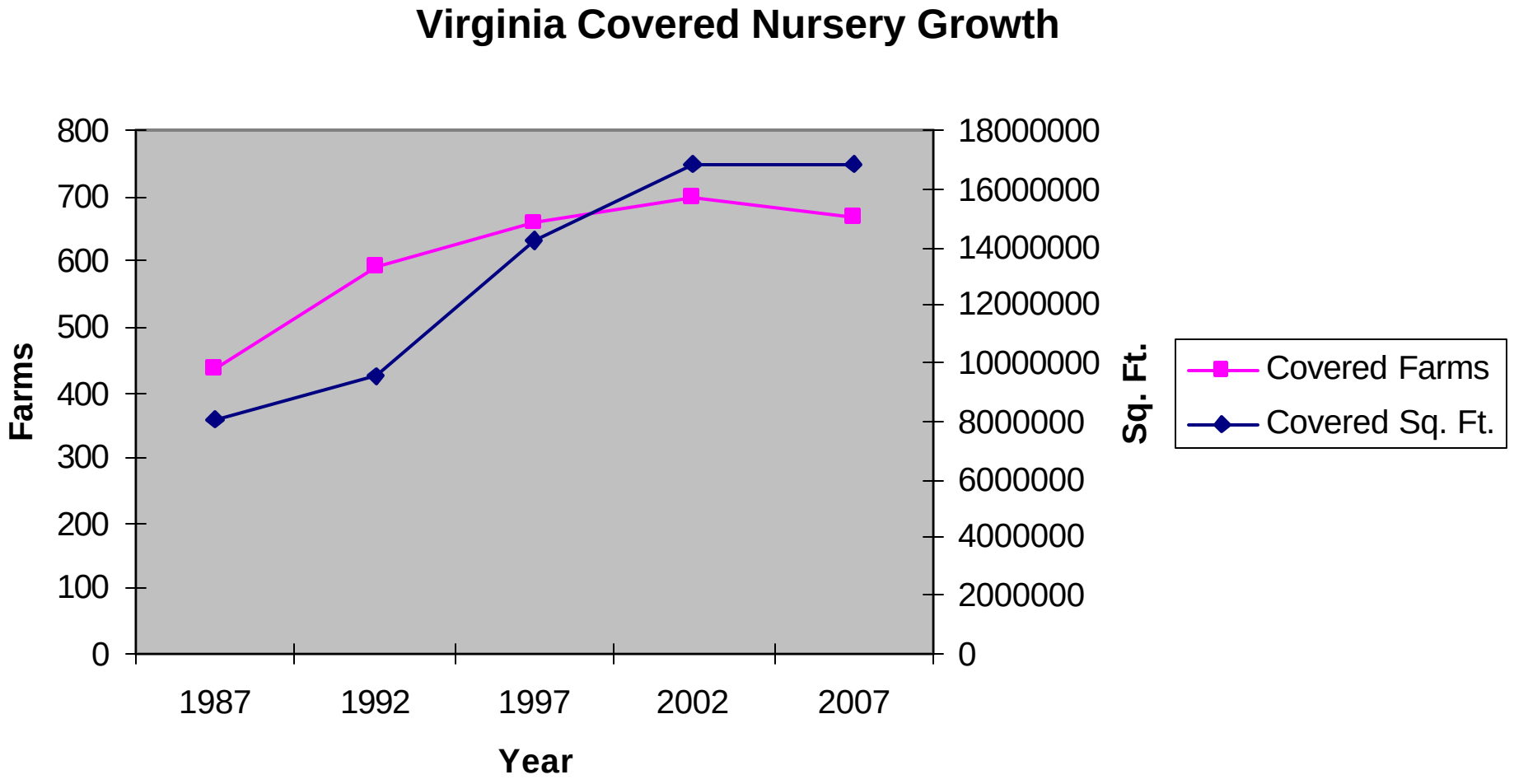
Wastewater Growth

- VA Code and regulation provides for combination of these approaches for wastewater:
  - Allocations set at 2010 design capacity of wastewater plants to recognize planning and investment made to provide wastewater treatment for future growth into foreseeable future
  - Regulatory nutrient caps call for offsetting new loads from future expansions of existing wastewater plants
  - VA Code calls for no allocation provided for new wastewater plants
    - 2005 legislation: this applies to only new plants > 40,000 gpd
    - 2010 legislation: this applies to only new plants > 1,000 gpd

Agriculture Growth

- No net overall sector growth expected
- But some subsectors likely to grow:
  - Nursery production
  - Dairy farms – declining number of farms, but those remaining are getting larger – more will be regulated needing a waste load allocation

Example of Growing Agriculture Subsector



Urban/Suburban Stormwater Growth

- Option 1: Set aside a reserve load for future growth
- Option 2: Require an offset to be obtained for each individual site developed
- Option 3:
  - Determine average treated nutrient loads from collection of pre-development land uses
  - Upon development - Transfer per acre load to stormwater WLA or LA

Onsite/Septic Growth

- Option 1: Set aside a reserve load for future growth
- Option 2: Require an offset to be obtained for each individual site developed
- Option 3: New and Replacement systems meet a higher level of treatment (still likely results in some load increases)
- Other Options?

Accounting for Growth

Questions / Comments

Sector Working Groups

Sector Working Groups

- Provide feedback on future model run scoping scenarios
- Discuss what it would take to achieve levels in alternative scoping scenarios
- Each group would have any interested SAG members plus others with appropriate knowledge
- Meet one or more times
- Proposed groups: Wastewater, Agriculture, Stormwater, Onsite/Septic
- Meetings – Early July with follow-up meetings as needed

Sector Working Groups

- Potential Meeting Dates:

- Wastewater – July 6
- Agriculture – July 8
- On-site/Septic – July 9
- Urban Stormwater – July 12
- All meetings Tentatively at 1:00 at DEQ Piedmont Regional Office

Sector Working Groups

Questions / Comments / Discussion

Next Steps

Extra Slides

Websites

EPA

http://www.epa.gov/chesapeakebaytmdl/

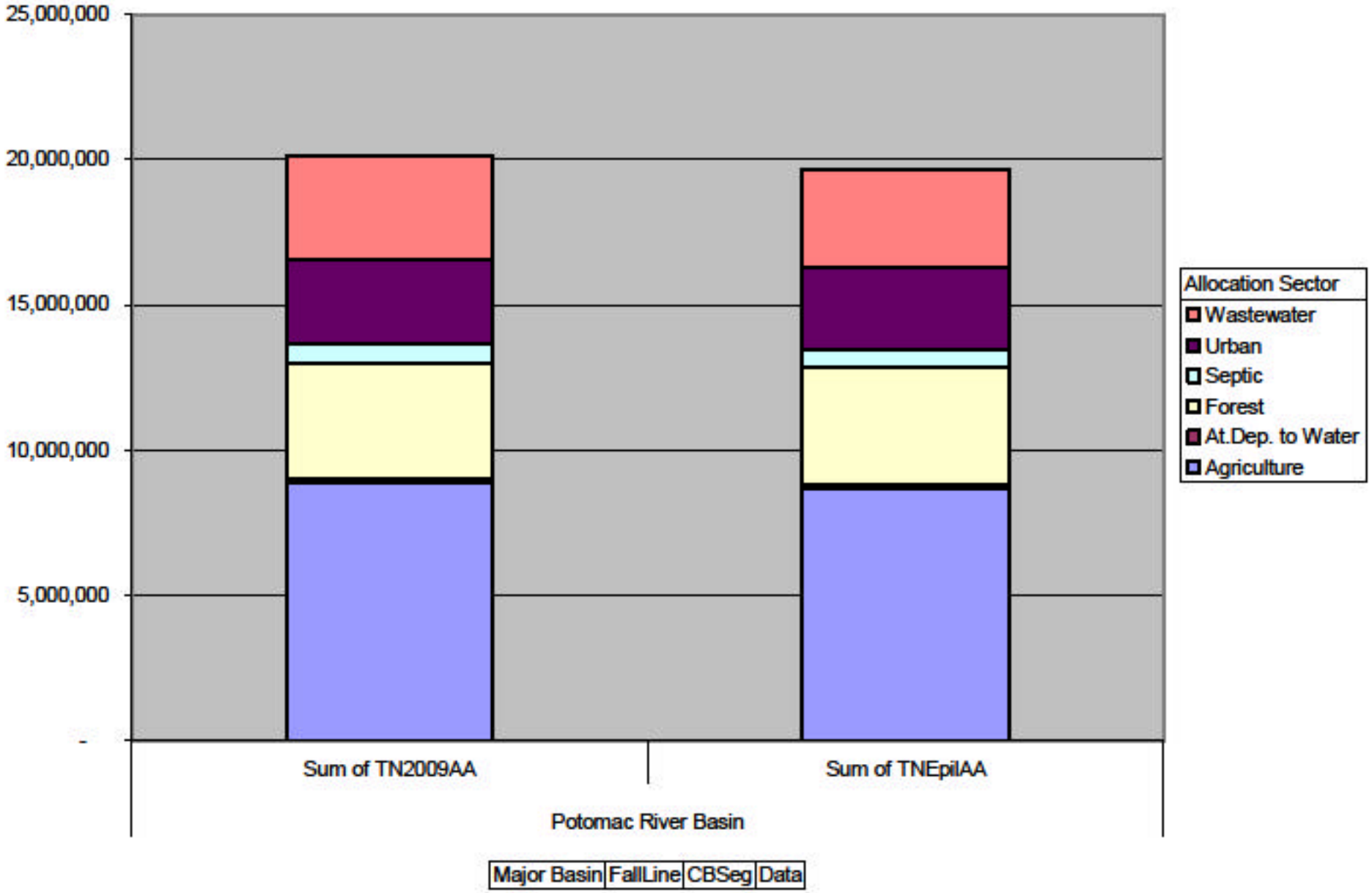
VA-DEQ

http://www.deq.virginia.gov/tmdl/chesapeakebay.html

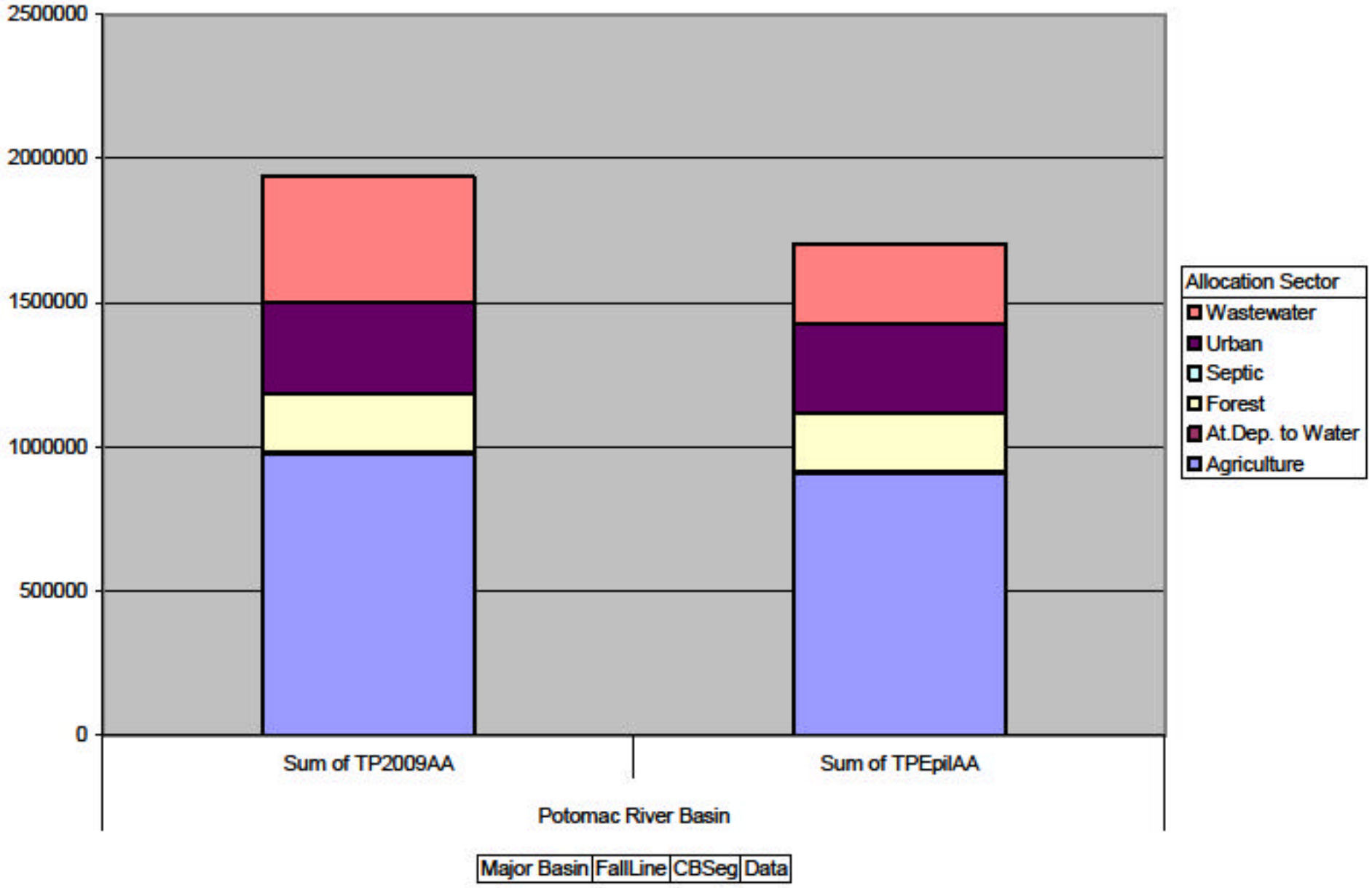
VA-DCR

http://www.dcr.virginia.gov/soil_and_water/baytmdl.shtml

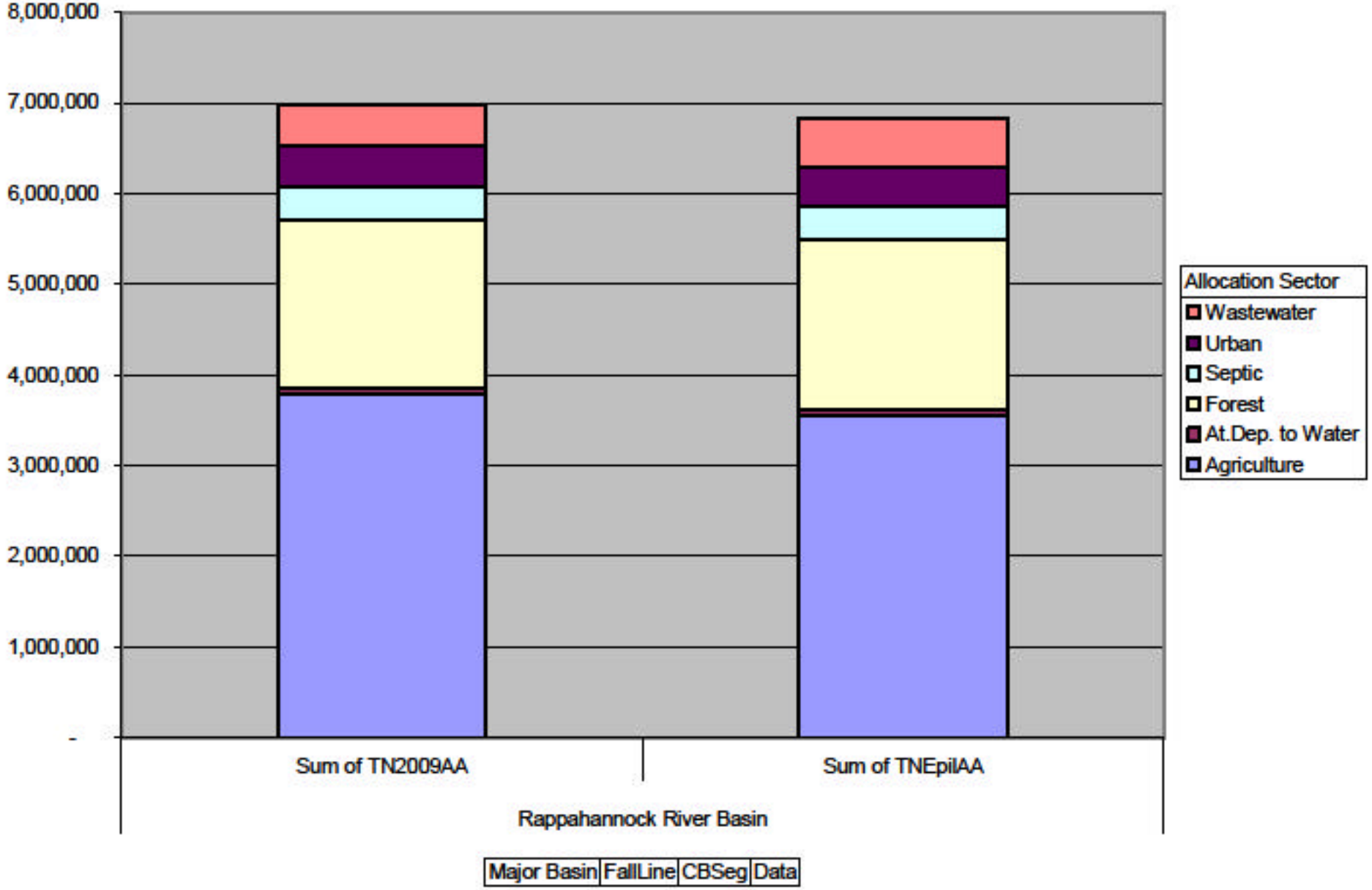
Potomac River Basin - Nitrogen



Potomac River Basin - Phosphorous



Rappahannock River Basin - Nitrogen



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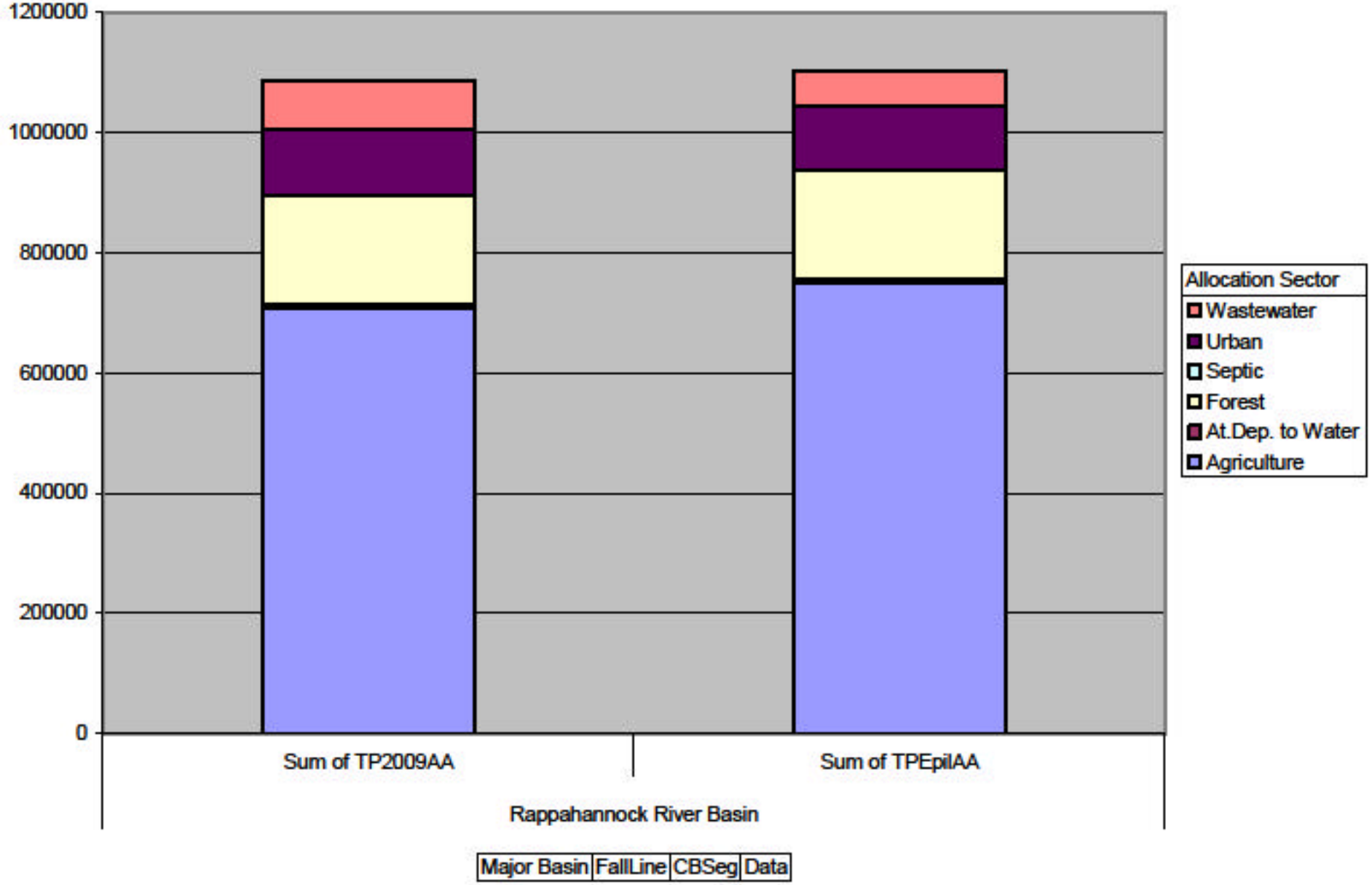
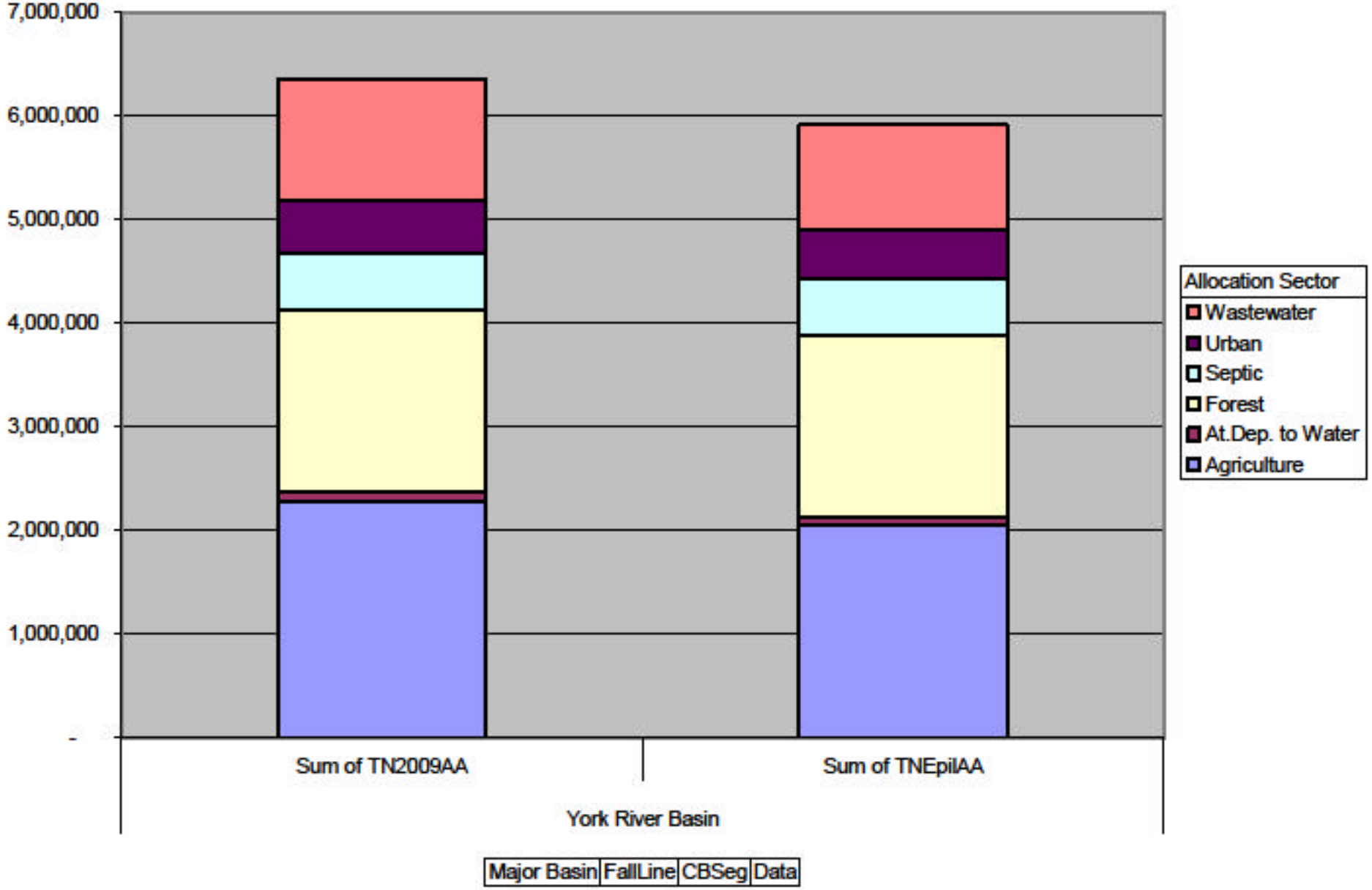
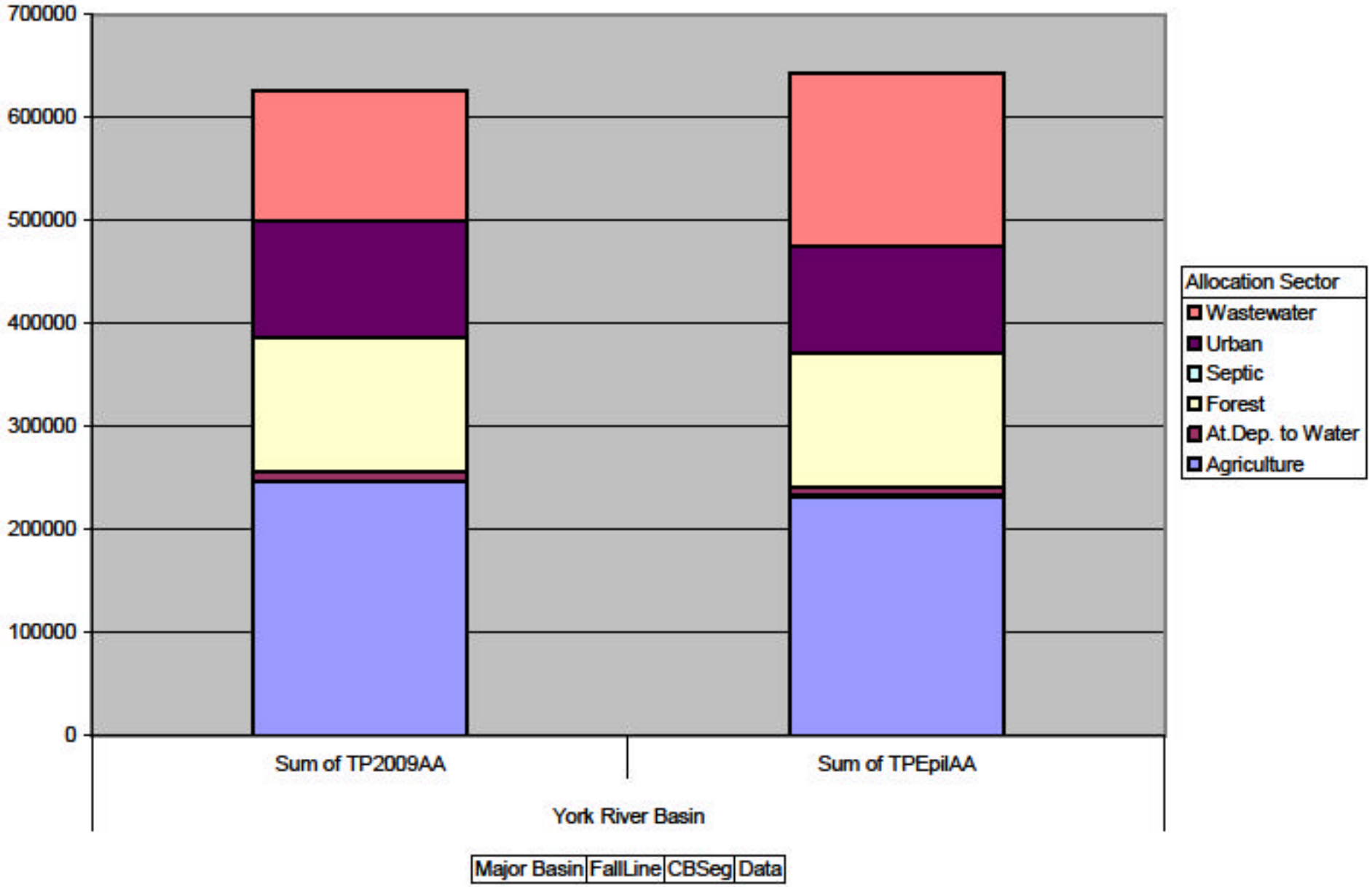


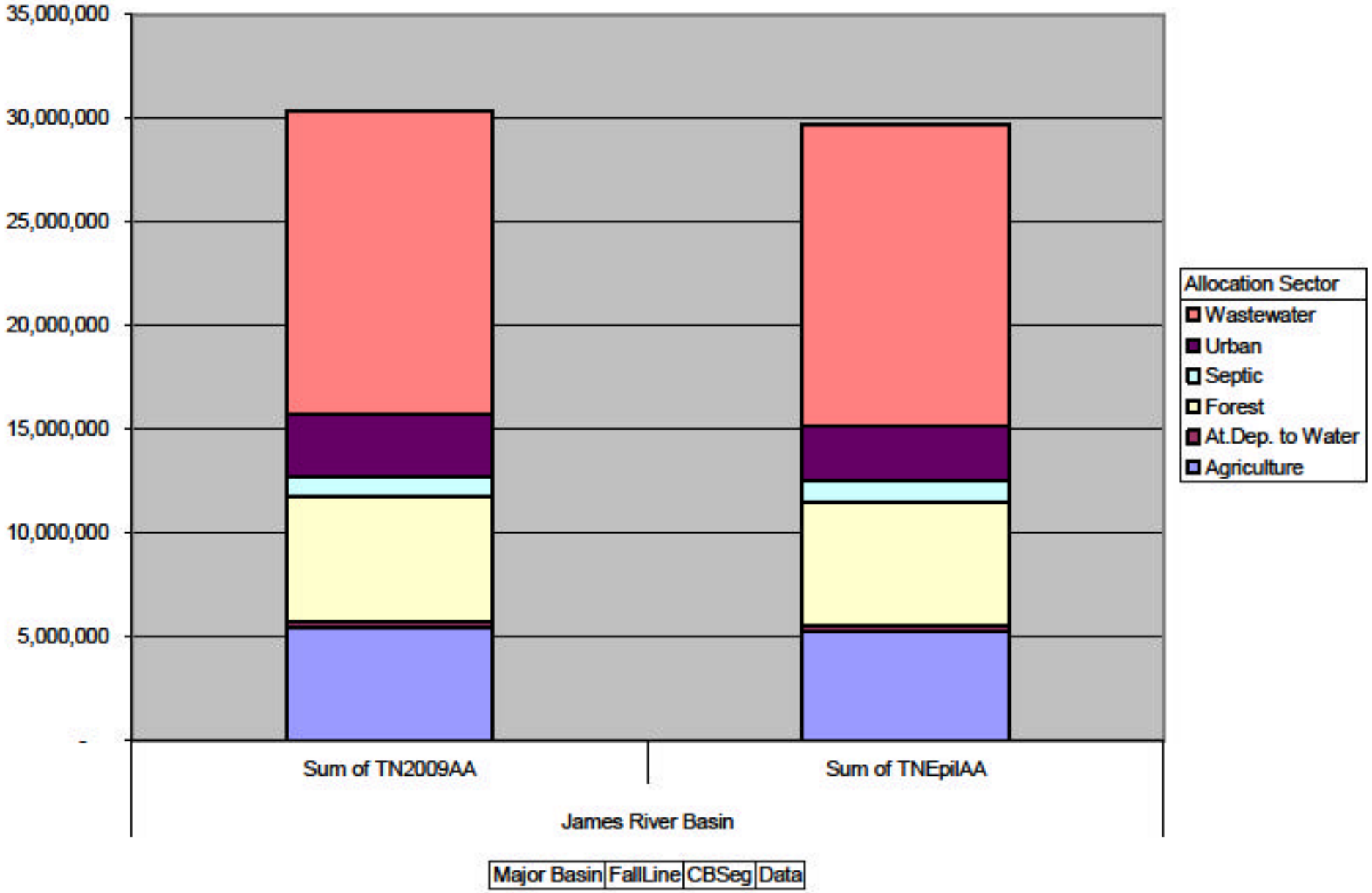
York River Basin - Nitrogen



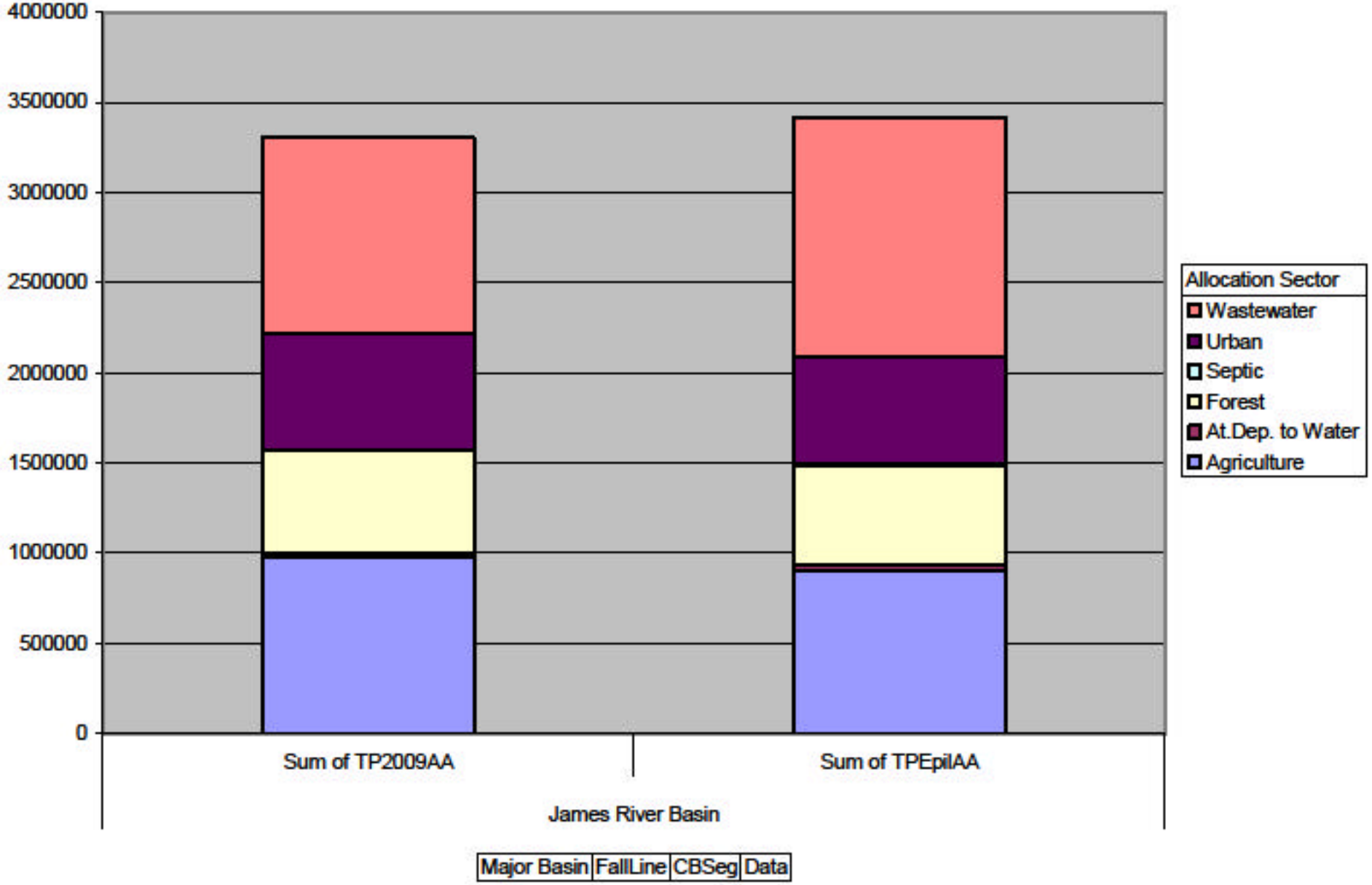
York River Basin - Phosphorous



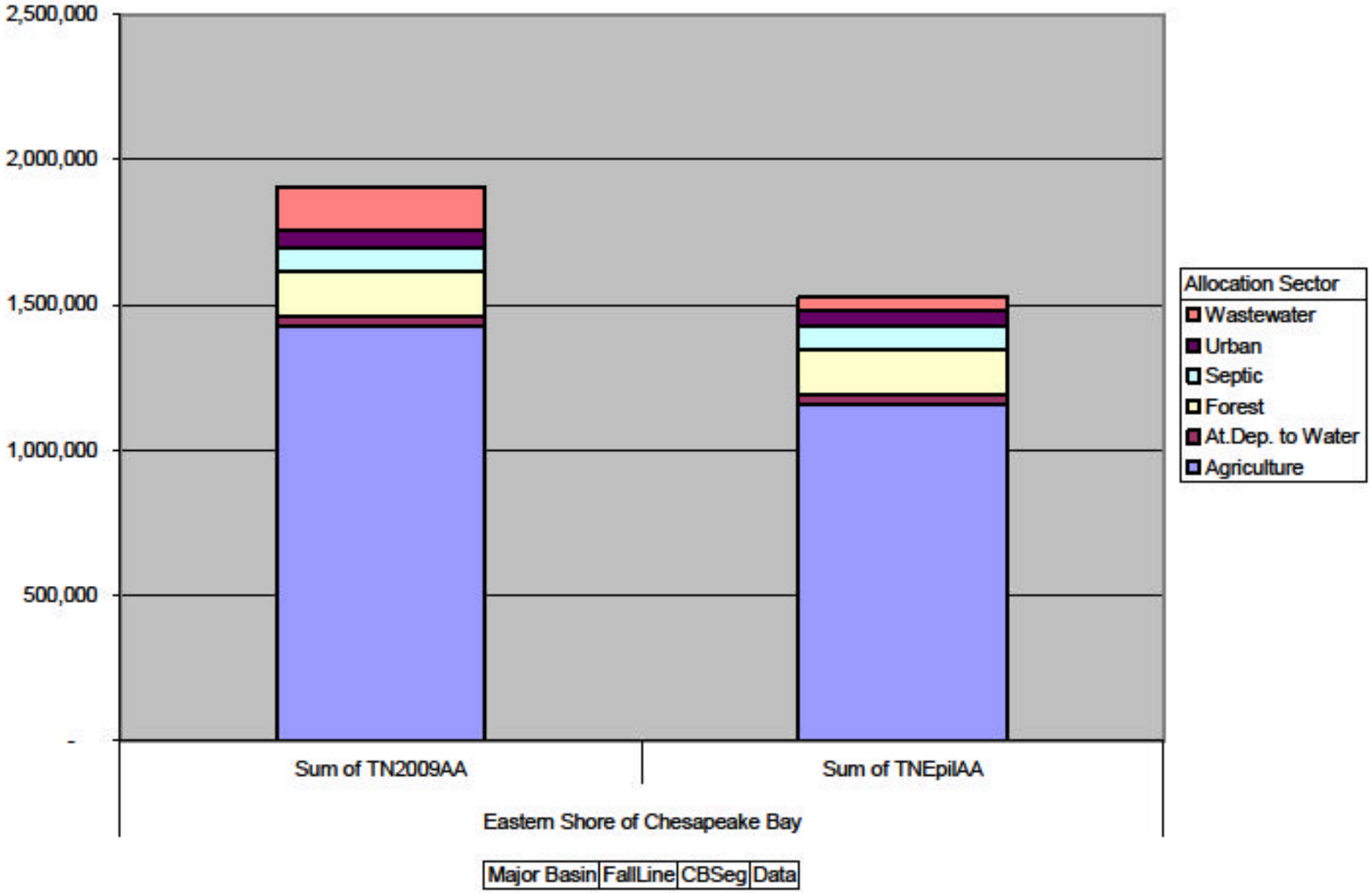
James River Basin - Nitrogen



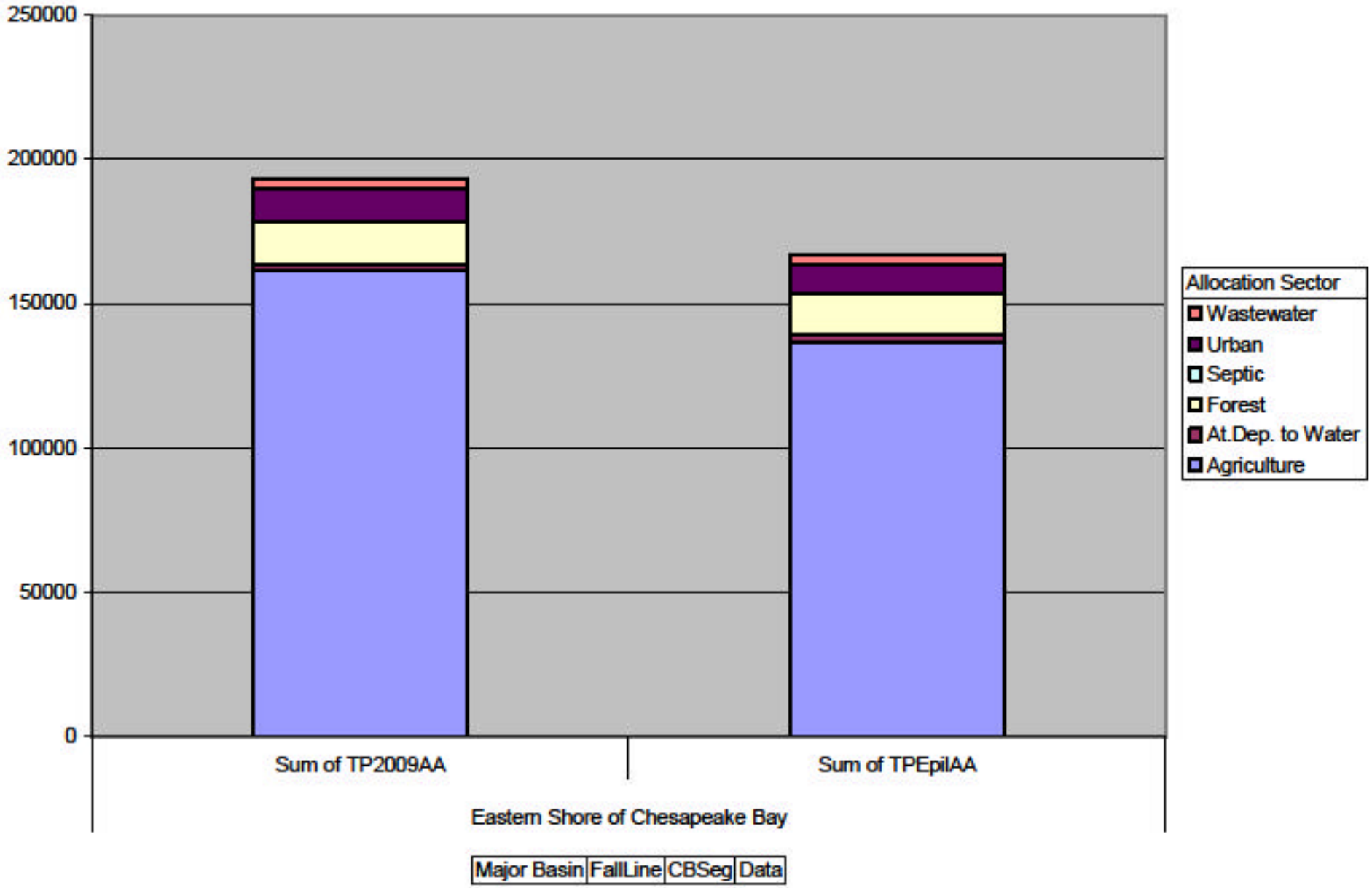
James River Basin - Phosphorous

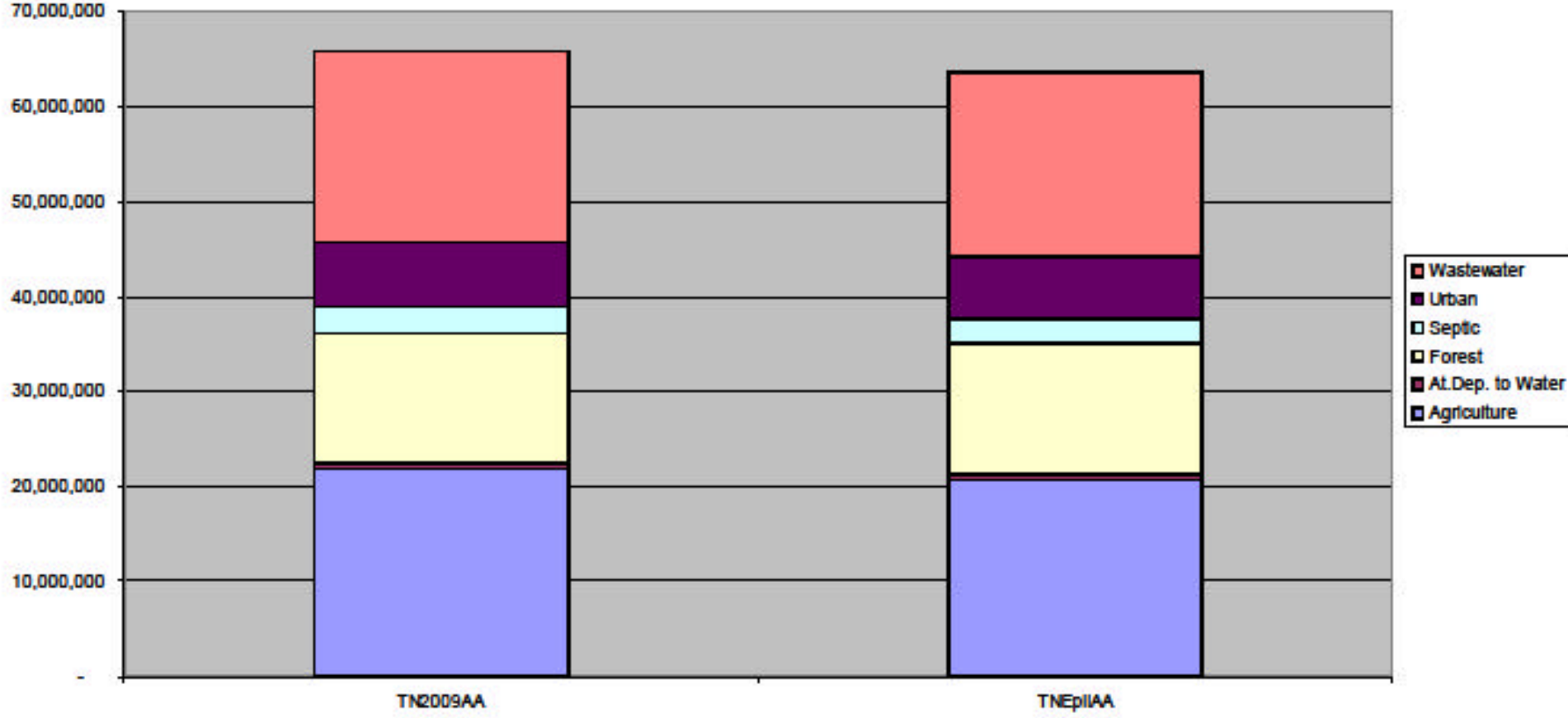


Eastern Shore - Nitrogen



Eastern Shore - Phosphorous




Virginia Chesapeake Bay Nitrogen
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60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
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TN2009AA
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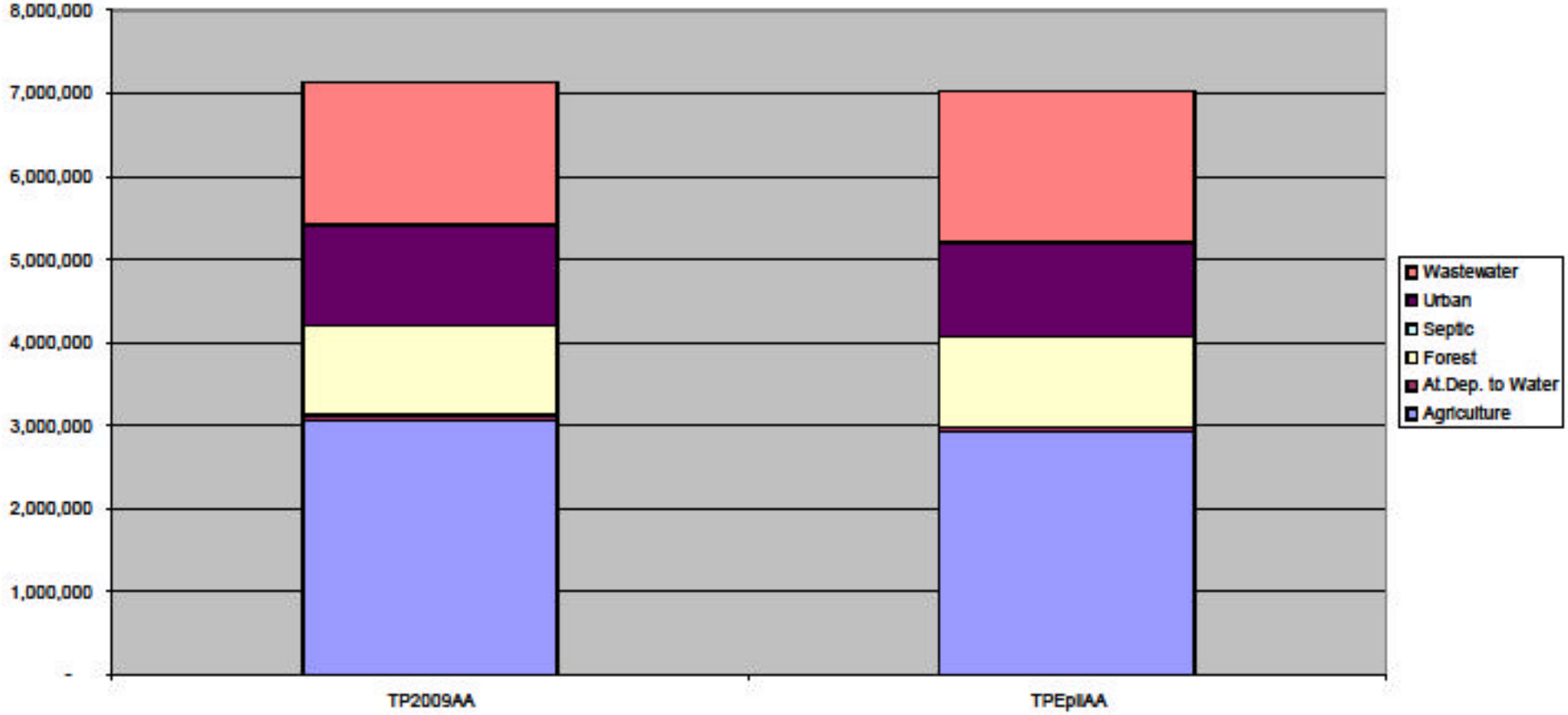
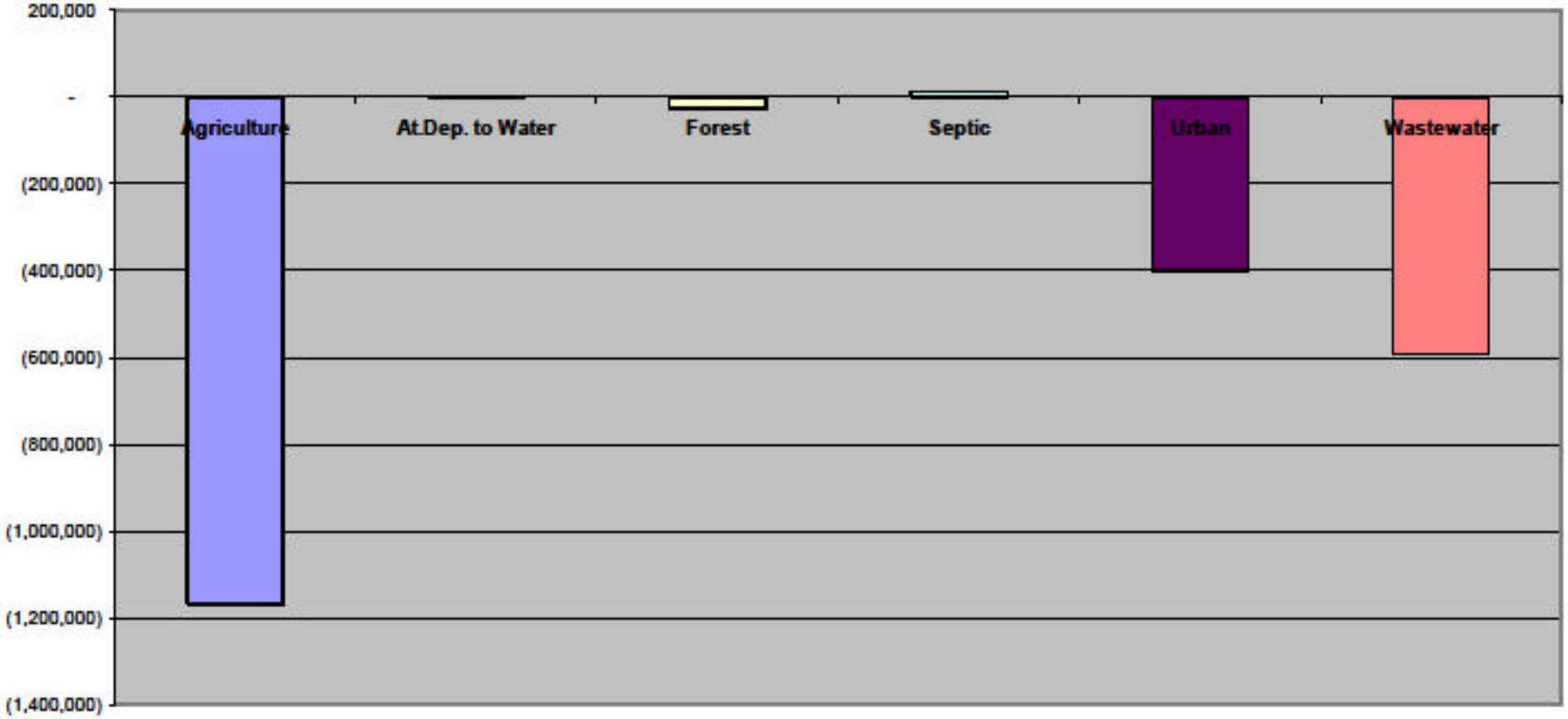
Wastewater
Urban
Septic
Forest
At.Dep. to Water
Agriculture

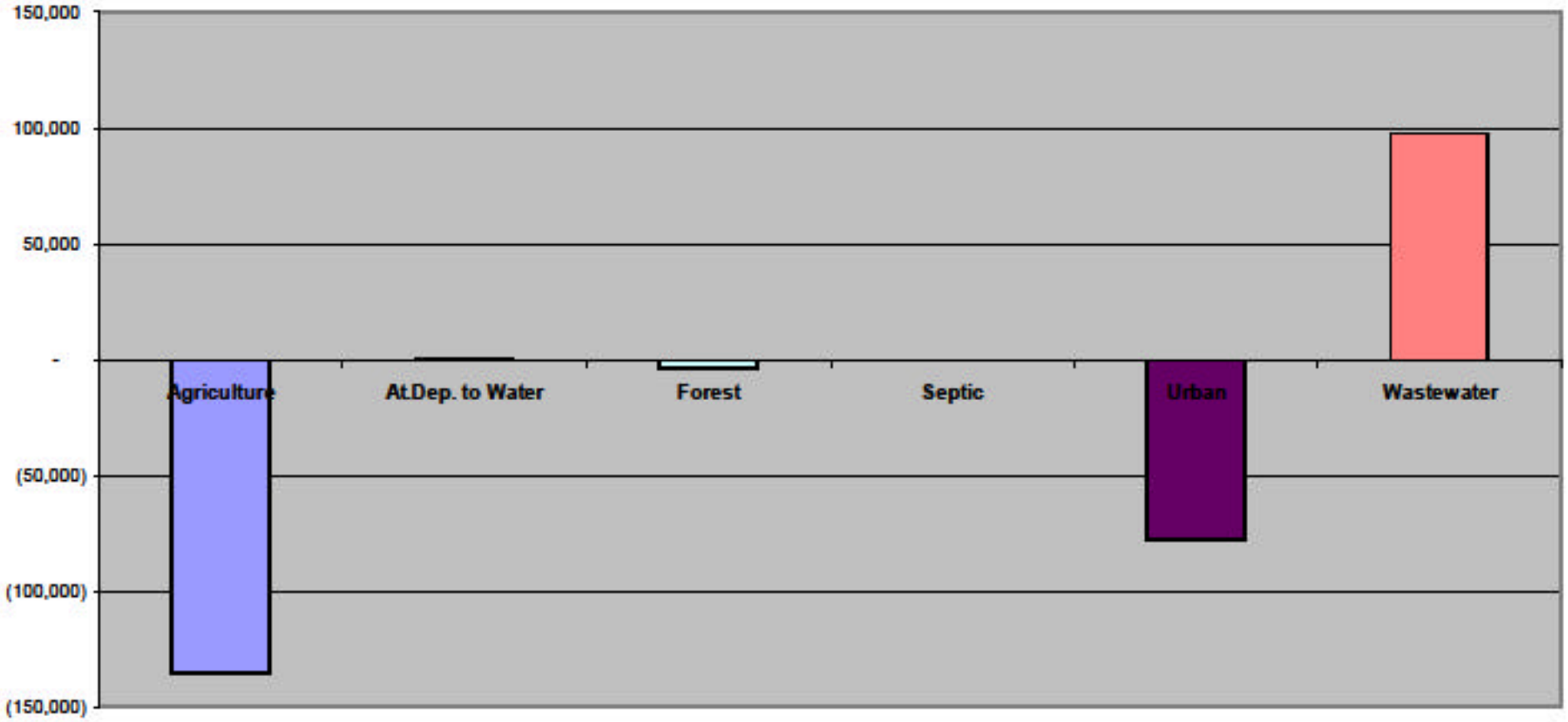
Virginia Chesapeake Bay Phosphorus



Virginia Chesapeake Bay Nitrogen Reductions from 2009 to EPIL



Virginia Chesapeake Bay Phosphorus Reductions from 2009 to EPIL



Agriculture
Additional BMPs

- Animal mortality composters - 1,023 poultry, 50 swine, 50 dairy
- Poultry litter transport – 35,000 tons out of Bay WS, 125,000 tons out of surplus counties
- Phytase feed P reductions – 30% reduction poultry, 35% swine
- Precision agriculture – 50,000 acres eastern VA
- Ammonia source reduction – 63% of chickens, 37% of turkeys
- Others

Accounting for Growth

Two methods EPA allows

- Set aside a reserve load for future growth
  - Would have to reduce total load allocations
  - Requires accounting system
  - Once the load reserve is used up, future needs must be obtained through offsets
- Offset future increased nutrient and sediment loads
  - Obtain load in the marketplace from someone with excess allocations
  - For land based loads, “Transfer” allowed load from previous land use